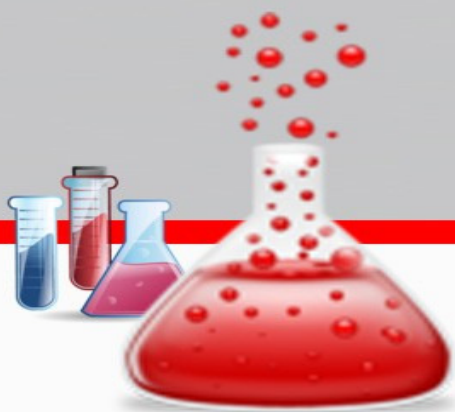


Chemical Applications

Jim Collins

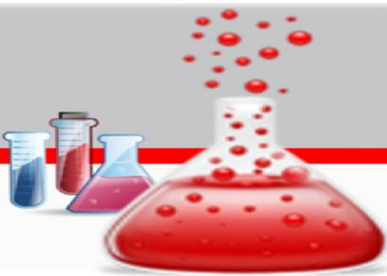
Business Development Manager

Brenntag Mid-South, Inc.



Question #1

Define “disinfection by-products” when it comes to potable water.



Answer #1

The new organics formed in potable water after the introduction of chlorine based oxidation chemistry in the water purification process.



Question #2

What commercial chemistries create DPBs?

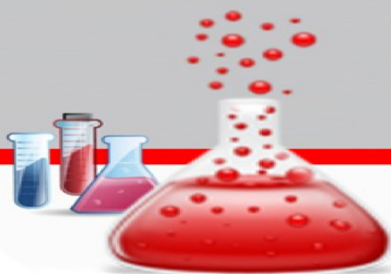


Answer #2

Chlorine

Chlorine dioxide

Sodium hypochlorite



Question #3

What chemistries are used in the make up of chlorine dioxide?

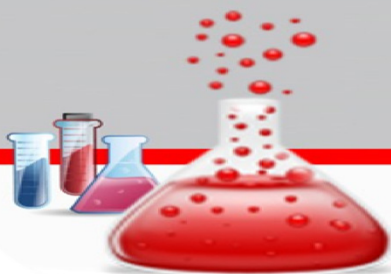


Answer #3

Hydrochloric acid

Sodium hypochlorite

Sodium chlorite



Question #4

Further define the most common species of DPBs.



Answer #4

Trihalomethanes (THM) – volatile organic compound

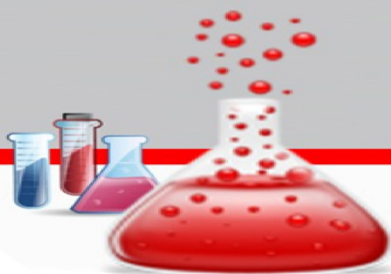
Four primary species of THM:

A) Chloroform

C) Dibromochloromethane

B) Bromodichloromethane

D) Bromoform

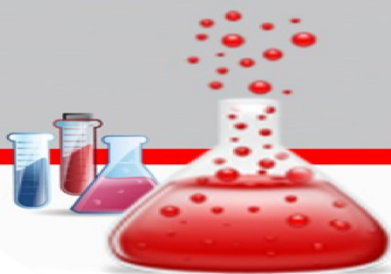


Answer #4

Methyl isoborenenol

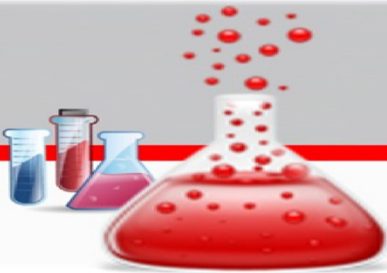
Geosmin

Haloacetic acid



Question #5

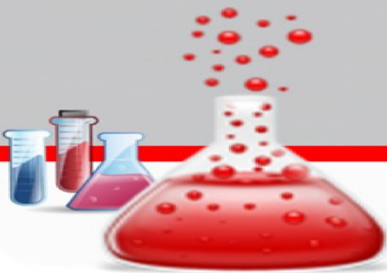
If you have issues, what can you use to achieve compliance with your permit?



Answer #5

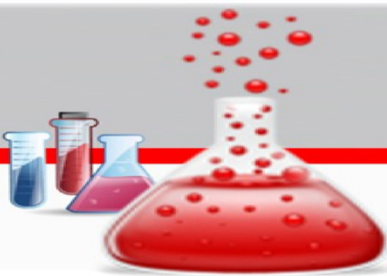
Carbon is an easy, logical, proven process

- Powdered activated carbon
- High iodine value is important
- Start by adding 2 pounds of carbon to 1 gallon of water (slurry)
- Coal based, coconut based and wood based carbons



Question #6

Your facility produces reverse osmosis spec water.
Should you be concerned with DPBs?



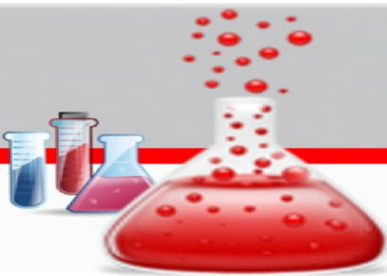
Answer #6

No; however, be very concerned with the presence of chlorine in your incoming city water.



Question #7

If you soften water or produce D.I. water, should you be concerned with residual chlorine or DPB?



Answer #7

No. Ion exchange is what occurs in these production processes, so no issues here.



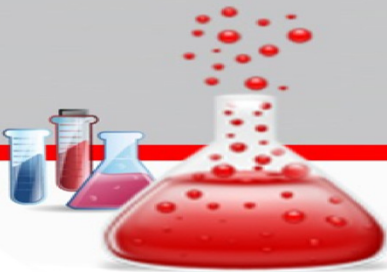
Question #8

Will the introduction of phosphates to your system help you remove DPBs?



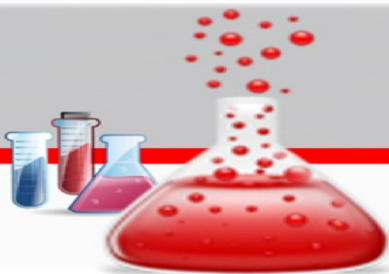
Answer #8

No; however, the less you leach piping and the more you sequester minerals, the more likely you are to see a decrease in chlorine demand.



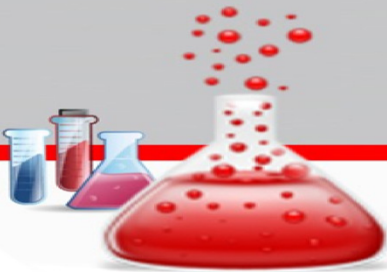
Question #9

Does the presence of DPBs apply to potable water only?



Answer #9

No. Now it's becoming an issue in municipal waste water treatment!



Question #10

What is peracetic acid?



Answer #10

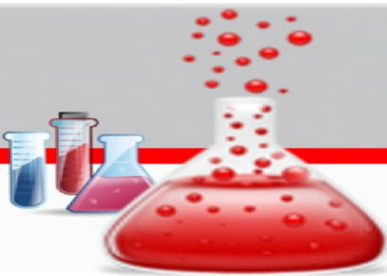
An excellent oxidizer/sanitizer used in municipal, industrial and food processing industries.

A hydrotrope of hydrogen peroxide and acetic acid.



Question #11

Can you use peracetic acid for purification of potable water?



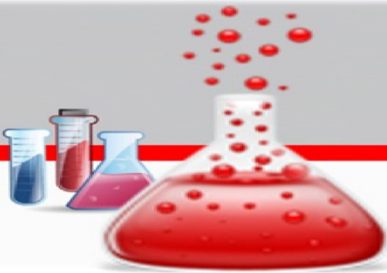
Answer #11

No, not yet.



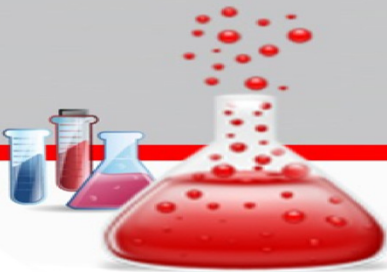
Question #12

Is microcystin considered a DPB?



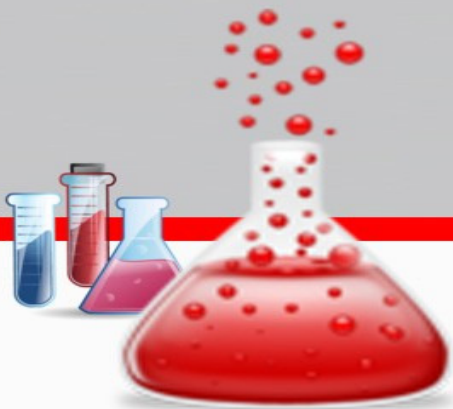
Answer #12

No. Microsystin exist because of algal blooms formed in surface waters worldwide.



Discussion of the following

- Buffers and buffer treatment – pH adjustment
- Ammonia removal methods
- Concentrate bleed in rates
- Biotoxicity testing → exist, reproduce
- 400 ml concentrate to 100 gallons of water



Questions?

